DOCUMENT RESUME

ED 281 478 HE 020 382

AUTHOR Lewis, Darrell R.; Wasescha, Anna M.
TITLE Costs and Benefits of Assessment in Post-Secondary Education. ASHE 1987 Annual Meeting Paper.
PUB DATE Feb 87
NOTE 45p.; Paper presented at the Annual Meeting of the Association for the Study of Higher Education (San Diego, CA, February 14-17, 1987).
PUB TYPE Information Analyses (070) -- Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Cost Effectiveness; *Educational Assessment; *Postsecondary Education; *Program Costs; *Program Evaluation
IDENTIFIERS *ASHE Annual Meeting

ABSTRACT

A conceptual framework for considering the costs and benefits of postsecondary education assessment is presented, along with a typology linking the costs of evaluation to their informational benefits. A number of cost-analysis paradigms and techniques for assessing alternative evaluation projects at the institutional level are also examined. The objective is to assist policy and decision makers at the institutional level. The cost analysis recommended for determining direct resource costs is known as a "resource components approach" to costing out educational programs. This approach requires specifying and measuring the specific resources employed within each evaluation project, and then valuing and costing each of these resources to determine the total costs for each project. A number of incidental and opportunity costs that are likely to result from higher education assessment are identified, along with direct information benefits of assessment and important indirect benefits. Approaches for budgeting for the cost of evaluation are also reviewed, and the use of cost-utility in assessing evaluations is addressed. (SW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED281478

COSTS AND BENEFITS OF ASSESSMENT IN POST-SECONDARY EDUCATION.

by

Darrell R. Lewis and Anna M. Wasescha

University of Minnesota

Paper presentation at the 1987 ASHE Annual Meeting in San Diego, CA, [February 16, 1987]

Darrell R. Lewis is Professor of Educational Policy and Administration at the University of Minnesota, and Anna M. Wasescha is Research Assistant in the Higher Education Program at the University of Minnesota.

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

ASHE

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

HE 020 382

ASHE

ASSOCIATION
FOR THE
STUDY OF
HIGHER EDUCATION

The George Washington
University
One Dupont Circle, Suite 630
Washington, D.C. 20036-1183
(202) 296-2597

This paper was presented at the Annual Meeting of the Association for the Study of Higher Education held at the San Diego Hilton in San Diego, California, February 14-17, 1987. This paper was reviewed by ASHE and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC collection of ASHE conference papers.

COSTS AND BENEFITS OF ASSESSMENT IN POST-SECONDARY EDUCATION.

ABSTRACT

Assessment concerns for program and institutional improvement, accountability, and efficiency have recently been increasing in higher education. Unfortunately, little attention has been given to whether (or how) we might "get our money's worth" from such efforts. In the context of this latter concern, this paper identifies a conceptual framework wherein assessment costs and benefits can be described and valued more fully and accurately; develops a typology linking the costs of evaluation in higher education to their informational benefits; and examines a number of cost-analysis paradigms and techniques for assessing alternative evaluation projects at the institutional level.

==========

INTRODUCTION:

During the past few years issues concerning the need for "more and better assessment" in higher education have been raised increasingly at all levels of funding and concern (i.e., federal, state, and institutional) and from both public and private sources (see especially National Institute of Education, 1984). These concerns are largely attributable to our growing societal and institutional concerns for greater program and institutional improvement, accountability, and efficiency in our post-secondary institutions. These calls for assessment information have been coming from institutional administrators and overseers, student clients, and the spectrum of external funders in our legislatures, governmental agencies and foundations.

Unfortunately, most of the recent discussion on these issues have focused almost exclusively on the "need" for assessment. Little attention has been given to whether (or how) we might "get our money's worth" from such efforts. As a consequence, this paper focuses on both the cost-feasibility and cost-benefit (including cost-utility) of such assessment in post-secondary education. It is

important to note at the outset that our unit of interest for determining costs and benefits is the assessment project itself and not the inputs and outputs of the units or programs being assessed.

Evaluation activities in higher education have been justified on the bases of a number of expressed reasons (and have promised a number of desirable outcomes). The most commonly expressed rationale is the need for "improving program or institutional effectiveness." How well is the program meeting its stated goals and what changes can we make to enhance the desirable outcomes? A second justification offered for assessment results from the need for "fiscal accountability" to either the institution or to external agencies. Have the funds been allocated and used for their intended purpose? A third and increasing rationale for assessment in higher education has been the need for "improving program efficiency," or quite simply the need for "improving resource allocation decisions." How cost-effective, for example, is the program in meeting its stated goals? [1] Obviously, all three of these rationales and their related questions are inter-connected. Nevertheless, each is addressing a separable issue and requires separable evaluation design considerations. Each of these questions also offer separable information and outcomes from the evaluation process. Equally important is the fact that each of these expressed needs and outcomes of the evaluation process requires the use of resources and the imposition of other costs on the project being evaluated. It is these latter costs which are often forgotten or minimized when arguments are being made for the benefits from "more and better assessment information" in higher education.

Some recent effort has been made to address these assessment costs and their related concerns in education by Alkin and Ruskus (1984), Alkin and Solmon (1983) and Haggart (1978), and in higher education by Bowen (1985), Conrad and Wilson (1985) and Ewell and Jones (1985). Similar concerns have been expressed also in the recent guidelines developed by the national Joint Committee on Standards for

Educational Evaluation (1981). However, little systematic attention has been given to assisting individual institutions in their planning, budgeting and administering of resources for such assessment purposes.

With evaluation questions from all levels increasingly being focused on issues of effectiveness, accountability, and efficiency, it is clear that the primary locus of control for these matters lies within the individual institutions. It is also clear that institutional policy-makers and administrators need reliable and complete (total and average) cost information for initiating or replicating an educational assessment project. They also need to know incremental (marginal) costs in order to make decisions about assessment project and service area expansions and contractions. They need to know what it costs to provide assessment for a particular activity or program. In higher education, in the main, the programmatic management responsibility, the data, and the capacity for making such decisions are all primarily at the institutional level. Consequently, the perspective taken in this paper focuses on the institution. Although assessment costs and benefits accrue to all stakeholders in higher education (including staff, students and society outside the institution), our primary concern and focus of analysis will be for policy and decision-makers within the institution.

Unfortunately very little exists in the current higher education literature which focuses on either the availability or the utility of such cost data and information for institutional policy and decision-making. Although there are a few studies which report real cost data in higher education (see, for example, Balderston, 1972; Bottomley, et al., 1972; Bowen, 1978; Bowen, 1980; Bowen and Douglass, 1971; Cavanaugh, 1969; Columbia Research Associates, 1971, 1972, 1975; Dillon, 1979; Halstead, 1975; Meeth, 1975; NACUBO, 1975, 1977; Verry and Davies, 1976; Wasser, 1978; and Witmer, 1972), only two by Bowen (1985) and Ewell and Jones (1985) address the costs of assessment and then only in simulated case studies for estimating probable costs for selective types of testing at the post-secondary

level. There is not a single empirically-based costs of assessment institutional case study or systematic cost-effectiveness analysis of assessment in the higher education literature (Conrad and Wilson, 1985).

Moreover, most of these past cost studies in higher education have had such major methodology problems and data limitations, or they collected data on such a macro-level, that their analyses and outcomes have limited value for the institutional examination of costs in assessment. Even when data were collected at the institutional level, most studies simply collected data from program or institutional printed budgets rather than from actual expenditures or employment of resources. While focusing almost exclusively on printed budgets, most of these past studies defined their costs solely in terms of cash budgets rather than on total program or institutional resources employed. Consequently, many categories of resources were simply ignored, left out of the analyses, or confounded with total budget considerations.

The objectives of this paper are directly related to overcoming the weaknesses of previous cost studies in higher education as they might be applied to assessment and to strengthening the policy and decision-making capacity of institutions in undertaking such activities. Based on these objectives, the questions addressed in this paper revolve around three general concerns: What are the resources employed and the costs of these resources in the delivery of assessment projects and services in higher education? How can these costs be linked to the perceived informational and other benefits derived from evaluation in higher education? And, how might these procedures and paradigms assist policy and decision-makers? In the context of these questions this paper a) identifies a conceptual framework wherein assessment costs and benefits can be described and valued more fully and accurately for institutional planning, budgeting and decision-making, b) develops a typology linking the costs of evaluation in higher education to their informational benefits, and c) examines a number of cost-analysis paradigms and techniques for assessing alternative evaluation projects at the institutional level in higher education.

ASSESSING EVALUATION COSTS AND BENEFITS IN HIGHER EDUCATION

Although some recent literature has begun to address the issues inherent in the costs and benefits of assessment and their relationships within education (Alkin and Ruskus, 1984; Alkin and Solmon, 1983), very little attention has been given to these issues within higher education (Conrad and Wilson, 1985).

On the other hand, recent work in the economics literature dealing with the "economics of information" does give a useful theoretical foundation and introductory paradigm for viewing the linkage of costs and benefits resulting from assessment in higher education. Beginning with Stigler (1961), Hirschleifer (1971) and Alchian and Demsetz (1972), economists have been increasingly concerned with the economics of information and have applied theoretical microeconomic models to the phenomenon of information seeking and its cost-benefit relationships.

The management sciences also have been addressing the "value of information" in the context of managerial decision-making. There is, for example, a growing body of decision theory literature whereby "decision tree" techniques and probabilities are being employed for determining the net expected value which might result from a particular decision to seek information. (For detailed descriptions of a number of corporate and public agency decisions where the decision tree technique has been applied, see Brown, Kahr and Peterson, 1974; Decision Analysis Group, 1976; and Huber, 1974). As formally stated by Huber (1980), "The value of information is equal to the difference between the net expected payoff from the decision made without the information and the net expected payoff from the decision made with the information" (p. 127). Unfortunately, all of the known illustrations employing this technique in the management literature require that both costs and benefits be expressed in dollars.

This conceptual framework, wherein benefits are defined in informational terms, also has been employed recently in the applied consumer economics literature (Day, 1978). Although the need for such information would appear to be essential for any

number of decision model approaches to evaluation (Popham, 1975; Stufflebeam and Webster, 1980), only one source within the field of evaluation (Catterall, 1983) has used this information paradigm and this was done in the context of public school testing. No one has systematically employed this framework in the context of higher education assessment.

The basic economic question being addressed in this literature is: What amount of resources should a decision-maker allocate in the search for information? This line of inquiry clearly has applicability to the concerns of this paper dealing with the costs and benefits of assessment in higher education (and should also provide a fruitful avenue for further research beyond the scope of this paper in the field of evaluation more generally). By its very nature, assessment in higher education is seeking information of benefit for either improving external accountability, effectiveness, or efficiency.

Basically the usefulness or utility of such evaluation information constitutes the primary benefits from assessment in higher education; and increased information benefits can be obtained by designing assessment procedures that will enhance their value and utility. It is these benefits (or the utility of its information) which must be weighted against the costs of each evaluation project in order to determine their cost-benefit or cost-utility. In turn, each of these latter efficiency measures then can be compared with alternative assessment projects in order to determine their relative importance and priority. This topic and concern for selecting alternative evaluation projects will be returned to in a later section of this paper dealing with cost-utility analysis. For now, this typology of costs and benefits, with benefits expressed in informational terms, does serve to give us an appropriate goal set and overview for examining evaluation in higher education and is illustrated in Table 1 below.

Our paradigm of costs and benefits linked to informational outcomes suggests, first, that the costs and benefits of alternative assessment projects in higher

TABLE 1

TYPOLOGY FOR ASSESSING COSTS AND BENEFITS

OF EVALUATION IN HIGHER EDUCATION

COSTS OF EVALUATION:

Direct Resource Costs:
- Personnel and Consultants
- Facilities
- Supplies and Materials
- Travel
- Data Processing

-or-

	Personnel	Facilities	Supplies	Et Al.
Management	x	x	x	x
Design and Planning	x	x	x	x
Instrumentation	x	x	x	x
Administration	x	x	x	x
Analysis	x	x	x	x
Reporting	x			x

Incidental and Opportunity Institutional and Social Costs:
- Possible Diminished Morale/Collegiality.
- Possible Legal and Moral Burdens.
- Possible Misinformation.
- Opportunity Costs of Student Study/Learning Time
- Opportunity Costs of Monitoring.

BENEFITS OF EVALUATION:

Direct Information Benefits:
- Improved Accountability.
- Improved Effectiveness.
- Improved Efficiency.

Incidental and Secondary Effects of Information Benefits:
- Incidental Student Learning.
- Incidental Changes in Attitudes of Staff.
- Incidental Knowledge Production.
- New/Renewed/Declined Accreditation.
- Increased/Decreased Quality/Quantity of Students.
- Increased/Decreased External Resources

education can be conceived in equivalent terms (i.e., their impact on a set of informational goals dealing with educational accountability, effectiveness and efficiency); second, that optimal amounts of evaluation are, at least in theory, identifiable when combined with cost information; and third, selections of alternative assessment projects can be made in a rational context (i.e., cost-benefi comparisons). It is generally understood in the evaluation literature (Joint Committee on Standards for Educational Evaluation, 1981, p. 60) that at the point where the costs of evaluation start to exceed its [informational] benefits, no further evaluation should be carried out. This formulation resembles Bowen's (1974) notion of cost-effectiveness, Scriven's (1980) description of cost-free evaluation, and Catterall's (1983) typology of costs and benefits dealing with the optimal amount of testing in the public schools.

Cost Consequences of Assessment in Higher Education: It is obvious that in the employment of any evaluation design for assessment in higher education, additional resources are being allocated for these purposes and there are cost consequences. Detailed information about the employment of these resources and their cost in each evaluation project, first of all, helps in identifying inefficiencies in resource use and in suggesting needed improvements in the evaluation design for each individual project. In this context of evaluation cost containment Haggart (1983) has noted that "both the objectives of the evaluation and 'what' is to be evaluated may remain the same; the 'how' is analyzed in order to illuminate the design-cost tradeoffs that will reduce the cost of an evaluation" (p. 59). Both Alkin and Ruskus (1984) and Ewell and Jones (1985) have similarly noted the potential for assessment cost savings as a result of early systematic cost analysis of the evaluation design. Second, cost information aids in determining if the assessment project is feasible given whatever budget or cost constraints might exist within the program or institution. Third, such cost information also contributes to a determination of the assessment project's overall value (i.e., is the evaluation

worth the cost?) when linked to the project's overall outcome benefits. And fourth, cost information is essential for any type of cost-benefit (or cost-utility) comparison of alternative assessment projects.

In order to assess the cost consequences of assessment one needs first to establish a workable framework by which to assess the direct resource requirements for each evaluation, along with a method for translating these requirements into cost estimates; and second, one needs to assess the likely incidental and opportunity costs of the project to both the institution and society (sometimes referred to in the literature as "cost externalities"). Such a framework for reviewing both the direct and incidental/opportunity costs of assessment in a higher educational context is illustrated in Table 1 above.

The cost analysis recommended for determining the direct resource costs within this framework is conventionally known as a "resource components approach" to costing out educational programs. This approach requires the specification and measurement of all the specific resources that are employed within each evaluation project; and then valuing and costing out each of these resources to determine the total costs for each project. (Alternatively, as in Table 1, one can also list a set of all the evaluation functions within each project; specify and measure all of the specific resources that are employed within each of these functions; and then value and cost out each of these resource components to determine the costs for each of the functions as well as total costs for the project.) When desired, total costs can then be standardized or converted into per unit costs for inter-project comparisons on the basis of any common institutional currency, such as the number of students, instructional hours, credits, or courses of study that the program or institution serves.

Table 2 below illustrates one version of this rather straightforward resource components approach for specifying, measuring and valuing costs of assessment for a representative institutional assessment project. [2]

TABLE 2
ILLUSTRATION OF ASSESSMENT COSTS IN HIGHER EDUCATION
EXAMPLE: VALUE ADDED INSTITUTIONAL ASSESSMENT IN SMALL COLLEGE

Nunber of FRESHMAN @ year: 400: Number of Seniors @ yr: 340
Number of TOTAL STUDENTS at College @ year: 1500

Annual Cost	Resource Component
	PERSONNEL
$11,463 ____	professional staff fte .40 plus benefits.
$7,950 ____	.5fte sec/clerical, plus benefits.
$1,375 ____	professional technical services and consultants.
$6,576 ____	program administration fte .14 plus benefits.
$1,595 ____	other personnel costs (proctors, etc. w/benefits.)
	FACILITIES
$640 ____	office space (includes program adm. proration; annualized at 10%; space sq ft: 210).
$52 ____	office furnishings annualized at 10%.
$342 ____	maintenance/utilities/insurance (space sqft: 210).
	SUPPLIES AND MATERIALS
$10,984 ____	test and survey instruments
$230 ____	mailing and postage.
$575 ____	printing and publishing
$128 ____	other supplies.
	OTHER
$382 ____	travel
$210 ____	computer and data processing
$42,502 ____	TOTAL PROJECT ASSESSMENT COSTS PER YEAR
$125 ____	AVERAGE COSTS PER SENIOR PER YEAR
$28 ____	AVERAGE COSTS PER STUDENT PER YEAR

Both direct institutional resource costs and other non-budgetary institutional costs can and should be accounted for in the analysis and are illustrated in Table 2. Total resource costs of assessment services and activities to the institution or individual program areas include not only direct expenditures according to their ingredient or resource components (including fringe benefits to all personnel), but travel costs, payments to external agencies, vendors and consultants, imputed and annualized costs for facilities and equipment, data processing, and other administrative costs. Procedures and assumptions for the allocation of these resources and their respective costs for assessment are identified within Table 2 and are detailed in the literature (see, e.g., Chambers and Parrish, 1984; and Levin, 1983).

A few recent studies can be found in the literature which deal directly with the costs of assessment and, in the main, they do address and employ a resource components approach to costs. They tend to focus on two general themes: 1) the problems and issues of establishing a framework for identifying, measuring and valuing the resource requirements of an evaluation--i.e., procedures for "costing out" evaluation projects (Alkin and Ruskus, 1984; Alkin and Solmon, 1983; Bowen, 1985; Catterall, 1983; Ewell and Jones, 1985; Haggart, 1983; Morell and Weirich, 1983; and Sanders, 1983) and 2) determining the actual costs of completed evaluation projects (Alkin and Stecher, 1983; Armstrong, 1982; Drezek et al., 1982; Goldman, 1980; Lai, 1978; Paisley et al., 1978; and Rusnell, 1979). There are a number of other useful sources in the literature which can assist the evaluator in identifying and valuing the prices of resources in higher education (Bowen, 1980 and 1985; Fincher, 1978; Halstead, 1975 and annual supplements; Meeth, 1974; National Center for Education Statistics, annual reports; Vaizey, 1970; Verry and Davies, 1976; Wasser, 1978; and Witmer, 1972).

In their development of cost paradigms for evaluation projects, almost all of the authors recommend some type of checklist of functions for determining the

resource requirements. Haggart (1983), for example, has suggested five functional categories which would include a) overall management, b) design and planning, c) instrumentation, d) administration, and e) analysis and reporting. Ewell and Jones (1985) have recommended similar cost dimensions for institutional testing. Such checklists by evaluation function could be built into a costing framework by simply enumerating each of the resource categories and items separately within each functional category. As illustrated in the first part of Table 1, a two-way matrix could be developed with cost functions listed vertically and resource components listed horizontally. The actual accounting framework is not critical. What is important is simply that all resources that might be used in the evaluation be identified, measured and counted. In our discussion on the costs of assessment in this section, we have drawn heavily on the earlier work by Alkin and Ruskus (1984), Alkin and Solmon (1983), Catterall (1983), Haggart (1978), and Levin (1983). The reader is encouraged to review these earlier publications for greater detail as to both the procedures and assumptions inherent in a resource components approach to costs.

Incidental and Opportunity Costs of Evaluation: A number of incidental and opportunity costs which are likely to result from assessment in higher education and to affect the institution, students, and society are also identified in Table 1 above. While some of these indirect and incidental costs have been noted by others in the field of evaluation (Alkin and Ruskus, 1984; Catterall, 1983; and Solmon, 1983), many have been ignored in the literature; and no systematic attempt has been made to examine or measure them in the context of higher education. It is important to note that we are not here discussing the indirect institutional resource costs of an assessment project which might be shared across projects within an institution, such as facilities, clerical staff, central administration, fringe benefits, and the like. It is assumed that these types of real institutional uses of resources can and should be identified and measured in dollar terms within the resource components

approach identified in Table 2 and within the related discussion concerning direct resource costs. On the other hand, most of the opportunity and other incidental costs in Table 1 clearly do not lend themselves to precise numeric measurement. Still, the evaluator and decision maker must be cognizant of their reality and likely effects and, in turn, hold them as additional costs when examining total project outcomes.

For example, as a consequence of an evaluation project it is possible that there may be some diminished collegiality (and subsequent diminished institutional productivity) on the part of staff as the result of either real or perceived intrusions on academic (or work) freedoms (Seeley, 1981). Similarly, there may be diminished morale on the part of staff through anticipating either negative or unrealistic positive results. Results from a survey by Armstrong (1982) indicate that there are indeed such "intangible costs" and negative "morale" effects which might result from evaluation activities within the public schools.

In addition, the issues and legal requirements of openness ("Sunshine Laws") in public higher educational institutions also have implications for costs resulting from assessment. In those states with such laws, it is quite apparent that all (non-personnel) assessment results would be public information. In the context of higher education, Cleveland (1985) has examined these requirements of law and has concluded that in many cases they are indeed likely to lead to some negative effects (costs) for both the institution and society. He notes, for example, that there tends to be a loss of candor in individual responses to various forms of evaluation when anonymity is not insured and that the results, if negative, are often reported in "simplified" and "trivialized" form. He also reports that openness generates administrative costs for reporting purposes; and, at worst, it may "encourage criminal behavior" when individuals and institutions attempt to circumvent the requirements of the law. In brief, "the net effect of the impact of openness ... is to reduce the quantity and quality of information used in decision-making" (p. 23)

and much of this information represents the outcomes from various types of institutional assessment.

In a somewhat different, but related fashion, Trow (1975) argues that the growing external concern for accountability, effectiveness and efficiency in higher education "increases the role of nonacademic authorities in the decisions about what goes on in its institutions" (p. 116) and are "on balance most harmful" (p. 122). This results primarily because the informational results are often based on either misinformation or measurement with too limited focus. Trow argues basically that such externally generated demands for evaluation simply cannot measure and assess effectively all of the unique and long-term outcomes resulting from higher education and, on balance, result in negative effects especially for research and graduate training universities. In related arguments, Alkin (1980) and Solmon (1983) also hold that when evaluation projects tend to focus on rather narrow and/or immediately observable objectives, certain long-term goals may be slighted or even ignored altogether. Drawing on the "organized anarchy" model of organizational behavior (March, Cohen and Olsen, 1972) there is also a very real potential for evaluation once initiated to lose or lack meaning, to uncouple from appropriate problems, or to distract from more critical issues. Other authors (Lindblom and Cohen, 1979) have also pointed out that bureaucratic inertia in both institutions and governmental agencies often can lead to "the expensive collection of rapidly obsolescent data" (p. 86) or the collection of irrelevant data simply because of outdated regulations or the availability of funding.

The opportunity costs of student time which might be taken from teaching/learning for any assessment participation also must be accounted for in terms of real but intangible costs--at least to the students. Although it is assumed that the opportunity costs of staff time and use of facilities can and should be accounted for within direct costs whenever possible, other possible opportunity costs to society should be recognized by decision-makers. Catterall (1983) has

noted, for example, the additional costs in time which a state agency might spend in legislating, developing and monitoring evaluation.

How Much Should Evaluation Cost? Throughout the preceding discussion we have focused on the cost feasibility question: How much "does" a particular evaluation cost? On the other hand, several attempts have been made to estimate guidelines for how much evaluation "should" cost in relation to the overall budgets of educational programs without undertaking an actual resource components review. Many granting agencies have insisted on having evaluation as an integral component in whatever project or program they might be funding and some, at least in the past, were seeking some form of guidelines for funding this dimension. Administrative decision-makers, program developers and evaluation analysts have all similarly been concerned with how to budget for this cost. Many have believed that such guidelines might give them a useful yardstick for both budgeting and feasibility determinations. Apparently conventional wisdom has held that all one needed to do was assess empirically the model costs of evaluation and then use these results as "rules of thumb" for planning and funding.

The results of these attempts have varied widely. Rusnell (1979) reports that "ten percent of program cost is sometimes suggested for use in evaluation" (p. 97), but offers this guideline without rationale. The results from a survey of public school evaluators by Drezek, Monkowski and Higgins (1982) indicate that they prefer an evaluation budget of at least 4 to 8 percent on the average. In higher education, Bowen (1985) has recommended that "an institution might devote as much as one to three percent of its educational budget to evaluation and related research and development" (p. 18). Even the recently revised Standards for Evaluations of Educational Programs, Projects, and Materials by the Joint Committee on Standards for Educational Evaluation (1981) is currently promoting "a rule of thumb ...that an evaluation budget should be approximately 10% of the program or project budget" (p. 187) without further rationale. It has been reported that "the old federal

tradition was for Title III and Title IV projects to budget typically from 4 to 6 percent of the overall budget for evaluation, while today many people are budgeting around 8 percent" (Telephone interview by authors with Len Nechman, Minnesota State Department of Education, 1986). In actual practice, however, Abramson and Wholey (1981) note that HEW evaluations were supported largely by one percent set-aside funds for evaluation in the authorizing legislation. Others (Drezek, Monkowski and Higgins, 1982; Goldman, 1980; Lyon, et al., 1978; and Webster and Stufflebeam, 1978) have all suggested that in the public schools less than one-third of one percent of total budgets are devoted to educational evaluation. At the present time there are no federal guidelines or rules governing the size of evaluation budgets. From these surveys, all we currently have are ranging "rules-of-thumb" and ranging estimates from less than one to over ten percent with limited rationale except for presumably the availability of funds.

Alkin and Stecher (1983) reported on the results of an interview survey designed to determine whether factors such as type of evaluation being conducted (formative or summative) and the total budget size affected the amount and types of evaluation costs. Providing data from interviews with 25 evaluators from a variety of agencies, their results suggest that evaluation type and total budget may be less important in determining costs than whether or not the evaluation involved site visits, required the development of new instruments, or used professional rather than clerical staff to prepare data. Most important, their study indicated that the cost of each evaluation is a highly variable and individual matter closely linked to the goals and design of each project.

Morell and Weirich (1983) and Haggart (1983) similarly report that the unique characteristics of each evaluation have important impacts on cost. Most are rather obvious. As the number of units being evaluated increases, the total cost increases while the cost per unit declines. Decisions regarding the complexity of the evaluation design, the level of data requirements, and the type of data collection

and analysis all have obvious effects on the evaluation's resource requirements, and thus on its cost. As Alkin and Ruskus (1984) have firmly stated, "our research on the costs of evaluation has convinced us that it is difficult, if not impossible, to generalize about the direct or indirect costs associated with evaluations of different types. Idiosyncratic features affect the costs of evaluation..." (p. 12).

A recent telephone survey by the authors of this paper of several directors of large private foundations indicates that such directors are becoming much more knowledgeable about the needs for evaluation and their inherent costs and they are no longer simply seeking numerical guidelines. It was noted in several of the interviews that evaluation can "appropriately" cost anywhere from zero to 100 percent of the program budget depending upon the evaluation objectives and design; and many of the foundations are prepared to pay the cost. One of the foundations, for example, has been especially involved with funding and evaluating programs in the field of health where the measurement of outcomes is more possible and the value of the outcomes is assessed to be high for society. They have been hiring "very expensive professional evaluators" because they "are not interested in quick and dirty evaluation." Their perspective on evaluation has been that "high worth merits high expense." In another foundation it was also noted that in some projects the evaluation might cost as much as the project itself. "The practical importance of the evaluation results are more important than the cost." In short, the real issue to these informed foundation leaders is not the dollar cost of an evaluation nor the cost of the assessment project relative to the cost of the program being assessed, but rather it is the relationship between the costs and benefits resulting from the evaluation project itself. It is clear today that many of the professional staff of private funding agencies are conversant on the topic of evaluation costs and that they are developing at least intuitive perspectives on evaluation cost-benefit paradigms for planning and funding purposes.

Benefit Consequences of Assessment in Higher Education: The direct information benefits identified in the second part of Table 1 can all three be tied to the overall informational goals of evaluation in higher education. However, evaluation in higher education also induces a number of other incidental and secondary effects on benefits as well. One such benefit is the often incidental learning of students through the evaluation process itself. In addition, any number of other actors in the evaluation process (e.g., faculty, administrators, alumni, and employers) are likely to be indirectly affected by the process. Such indirect benefits may accrue in the form of greater concern for and attention to what is being assessed simply as a result of the evaluation process and specification of goals by faculty and administrators (Dornbusch, 1979), or they may come in the form of more favorable external attitudes toward the program or institution simply because of the actors' perceived importance in contributing to the process. Another incidental benefit (at least to society) which often results from assessment is its potential contribution to knowledge production (and tne scholarly literature) and its possible generalizability to other settings outside the institution. To the extent that the assessment results are reported outside the institution, the informational benefits can likewise extend to other settings beyond the subject institution.

However, the most important indirect benefits accruing from assessment in higher education are the secondary effects and the actual purposes to which the direct informational benefits are ultimately put to use by external parties and agencies in the context of the subject institution. New or renewed accreditation may result; better, different and/or more students may enroll; more alumni and employers may contribute; and increased resources may come from students, foundations, donors, and legislatures. Recent research in the field of consumer economics (Day, 1978) indicates quite clearly that "enhanced confidence and satisfaction" (p. 137) are the principal outcomes resulting from information disclosure in consumer affairs. It is not unreasonable to infer similar results

from assessment in higher education. On the other hand, from the perspective of society outside the institution, the secondary effects of information benefits are no less valuable and important if they might also lead to declined accreditation, fewer students enrolling, or decreased contributions or resource allocations to the institution. (The issues of incidence and perspective are discussed in greater detail later in this paper.)

Similarly, if an institution should elect not to assess for effectiveness, accountability or efficiency information, a number of cost and (negative) benefit consequences likely will follow from its decision.

Effective institutions are those which achieve their desired outcomes. A concern for the efficient use of resources in achieving that end is, in theory, a separate issue. Most organizations strive to be both efficient and effective, however it is noteworthy that much of the literature on strategic planning relegates efficiency to a secondary concern. Effectiveness in a keenly competitive environment is essential. The availability of reliable effectiveness information clearly aids colleges in competing for media coverage, students, grants and gifts, and other forms of external resources. Where effectiveness information is lacking, colleges are disabled. In such settings, rational planning and decision making are not possible. Lacking evidence that the activities of a college are achieving its institutional mission also erodes the confidence of those carrying out those activities. There are also obvious associated costs with failing to develop relationships with a community of informed critics and clients. Institutions which are not self-reflecting have little basis for dialogue with those who are. It is reasonable to assume that the handicaps which accrue to insular communities would likewise accrue to such colleges.

Accountability is perhaps the most palpable use of evaluation outcomes because it links the credibility of the institution to external agencies and potential clients. Accrediting boards, foundations, and governmental agencies all request

reports and accountability information of one form or another and many of these agencies tie funding to compliance with reporting requirements. The loss of teacher certification capability or federal financial aid are, for example, relatively easy to translate into lost dollars and very real costs.

Efficient institutions strive to achieve desired outcomes with a minimum of effort, expense, or waste. Systematic evaluation can yield information which maximizes the efficient use of campus resources, saves resources for alternative uses, and improves planning and decision making (Barak, 1981). The lack of such assessment is clearly wasteful of resources.

Who Benefits and Who Bears the Burden of Assessment in Higher Education? A critical dimension often overlooked in reviewing the costs and benefits of assessment has been the issue of "perspective." The issue of perspective involves the questions of who gains the benefits and who bears the burden of costs. Table 3 below reformulates Table 1 with these questions addressed in summary fashion.

Although it is not the intention of this paper to review in detail the various secondary benefits (uses and consequences) of evaluation outcomes, it is useful to consider in a general way the effects on the primary stakeholders in the assessment process. It is only in the interests of these major groups that assessment information takes on value or cost. For ease of illustration, we have grouped the major stakeholders according to four major perspectives--i.e., staff within the program under review; other institutional staff, including administration, evaluators, and overseers; students; and other interested members in society outside the institution. Other perspectives on stakeholders could similarly be examined.

First, and most importantly, we should note that students as the primary consumers of the educational product in higher education are the greatest stakeholders in its assessment. They share in the burden of almost all of the costs; and both directly and indirectly benefit in almost all of the outcomes. No other group or perspective has such a high stake in the assessment of educational

TABLE 3

COST/BENEFIT PERSPECTIVES ON ASSESSMENT IN HIGHER EDUCATION

WHO BENEFITS AND WHO BEARS THE BURDEN OF ASSESSMENT

COSTS AND BENEFITS:	PERSPECTIVES:			
	Staff	Institution	Students	Society
COSTS OF EVALUATION:				
Direct Resource Costs:		-	-	-
Incidental & Opportunity Costs:				
Possible Diminished Morale/Collegiality:	-	-	-	
Possible Legal and Moral Burdens:	-	-		
Possible Misinformation:		-	-	-
Opportunity Costs of Student Time:			-	
Opportunity Costs of Monitoring:				-
BENEFITS OF EVALUATION:				
Direct Information Benefits:				
Improved Accountability:	+/-	+/-	+	+
Improved Effectiveness:	+	+	+	+
Improved Efficiency:	+/-	+	+	+
Incidental & Secondary Benefits:				
Incidental Student Learning:			+	
Incidental Changes in Staff Attitudes:	+/-	+/-	+/-	
Incidental Knowledge Production:				+
New/Declined Accreditation:	+/-	+/-	+/-	+
Increased/Decreased Quality Students:	+/-	+/-	+/-	
Increased/Decreased External Resources:	+/-	+/-	+/-	-/+

Perspectives:

Staff:	Faculty and administration in program evaluated.
Institution:	Other Institutional Faculty and Staff, including administration, overseers, and evaluators
Students:	Viewed as sole consumers of institutional product.
Society:	Other interested members in society not included in other categories, including donors, government agencies, legislatures, foundations, parents, and alumni.

institutions or their programs. Second, benefits accrue to the various stakeholders differentially, depending upon the results of the assessment. For some of the stakeholders, the gains may be either beneficial or negative depending upon the content of the evaluation outcomes. Third, the staff of the program being assessed does not have the same stake in either costs or outcomes as does the institution or other stakeholders. For example, it is reasonable to infer that if the informational outcomes reflect negatively on the program under review, the program staff could lose status or resources while at the same time the institution or other stakeholders might gain valuable information for policy and decision-making purposes. Finally, society, directly and indirectly, shares in both the costs and benefits of assessment in higher education.

The benefit and cost streams resulting from assessment are of considerable consequence for the many stakeholders. Faculty and staff involved directly in the evaluation can experience diminished or enhanced morale and collegiality. They can lose valuable time to the process, incur legal and moral burdens, and suffer the psychological costs of not having evaluation results conform with strongly held convictions about the institution or its programs.

Other faculty and staff, including boards of overseers, outside of the evaluation process can also incur benefits and costs. Evaluation results can result in diminished resources and can conceivably cause radical changes in administrative procedures, classroom conduct, and decision-making styles. Some evaluation outcomes force unanticipated actions, others generate both positive and negative publicity both on and off the campus and require tactical responses within the organization.

Students are often the subjects of evaluation, and thus give of their time and energy very directly. Evaluation information can affect them directly to the extent that students base their decisions about persistence, dropout, and transfer on the experience or outcomes of the process. And to the extent they are the primary beneficiaries of any increase or decrease in institutional or program effectiveness

or efficiency, students gain or lose accordingly. They are also affected when assessment in some fashion influences choices they make about colleges and majors, choices which alter their life paths either profitably or at great cost. Further, some have speculated on the residual cost of information bombardment and overload, particularly the amount of material perpetrated on prospective students and their families. It has been suggested by Reisman (1980, p. 198) that the current abundance of such information coupled with aggressive marketing techniques has served to dull the tastes and blur the preferences of some potential college students.

Others in society who bear the costs and reap the gains of assessment information include legislatures, foundations, alumni, and employers in the private and public sectors. In the sense that assessment information is used to decide, to persuade or defend, or simply to know, the costs and benefits are distributed broadly. The opportunity to use assessment information can occur at the level of a family deciding to send a child to a particular college or at the level of a state legislature deciding to appropriate an additional 24 million dollars to an institution for "technology transfer."

One Final Caveat About Sunk Costs: As noted, one of the major purposes for developing the cost-benefit typology described in this paper was to insure that all of the costs and benefits of evaluation were appropriately identified and measured. However, the decision rules for measuring costs underlying the evaluation of projects where funds already have been committed (i.e., where there are sunk costs) differ from those for assessing projects where all funds can be allocated freely among competing uses.

Sunk costs are defined as those costs which have been incurred on an evaluation project before a decision is made about new assessments and which therefore cannot be avoided even if they are considered utterly wasteful. For example, an institution might have in place the routine collection of certain types of student

data such as in the Registrar's office. The costs of such previously collected data, or the resources employed to collect the same data for some alternative purpose, should, of course, be excluded from the cost considerations for deciding whether to expand or build on the project. Bygones are bygones, and only costs that can still be avoided matter in this regard. The economic merit of an assessment project designed to complete or expand another project that was started earlier does not depend on the costs already incurred but only on the costs of completion or expansion. (Similarly, the benefits from the new assessment project are only those which will arise over and above those which may flow from the earlier work.) This treatment of sunk costs may and often does result in a higher net benefit resulting from the decision for expanded assessment, but this reflects the nature of the decision being made.

THE UTILITY OF COST-UTILITY IN ASSESSING ASSESSMENTS

Frequently in the evaluation literature one finds references to the admonition that "evaluation should produce information of sufficient value to justify the resources expended" (Joint Committee on Standards for Educational Evaluation, 1981, p. 60) and that the evaluator should thoroughly investigate the costs and benefits of an evaluation before deciding to do it and should "conduct evaluations as economically as possible" (p. 61). Others have been even more specific and suggested the direct use of "cost-benefit analysis" in the decision-making process (Bowen, 1974, p. 70). However, as we have discussed earlier these guidelines are effectively only hortative. Most evaluators know (or should know) that formal cost-benefit analysis is a framework for referring to and working in a situation where the results or outcomes of an intervention can be assessed only in monetary terms. Seldom is this type of outcome readily measurable in considering the benefits of assessment in higher education. [3] As a result, the use of cost-effectiveness analysis often has been suggested for selecting alternative assessment projects (Chelimsky, 1983; Schmidt, 1983). However, nowhere in the higher education

literature is there a single case study or even a hypothetical example illustrating the use of either of these two evaluation techniques for policy and decision-making in the selection of assessment projects.

Although the evaluation of outcomes is a familiar endeavor, and it is hardly the purpose of this paper to review basic evaluation approaches, it is useful to review briefly the nature of cost-effectiveness analysis because of its value in leading us to conclude that cost-utility analysis may be a more appropriate procedure for the assessment of evaluation in higher education.

We all recognize that in comparison with formal cost-benefit analysis the use of cost-effectiveness analysis frees us from the need for viewing and measuring outcomes solely in monetary terms (and from some other requirements of formal cost-benefit analysis as well) by permitting us to use a more direct measure in terms of the effectiveness of an intervention on a specific outcome. Thus, cost-effectiveness represents a better framework than does cost-benefit for doing most types of educational evaluations. The value in use and potential of cost-effectiveness analysis in educational evaluations is illustrated in a number of recent studies and books (see, e.g., Levin, 1983; and Quinn, et al., 1984).

On the other hand, formal cost-effectiveness analysis (like formal cost-benefit analysis) requires an explicit set of premises and procedures (such as directly measurable and standardized outcomes) and does not readily lend itself to decision-making in the selection of assessment projects. By its very nature, the selection of an assessment project requires viewing a range of alternative projects with the benefits of their expected outcomes expressed solely in terms of gaining "information" concerning how we might a) better document what we are doing for accountability, or b) improve the effectiveness of what we are doing, or c) improve the efficiency (cost-effectiveness) of what we are doing. Equally important are the time constraints which most decision-makers have with regard to selecting assessment projects in higher education; any serious consideration of formal cost-effectiveness

analysis would likely require months, if not years, of data collection and analysis time. As a consequence of these problems decision-makers in higher education usually select assessment projects that appear to be most pressing and that tend to focus simply on the outcome information either immediately desired or mandated. Often little, if any, consideration is given to costs (except in the case of cost feasibility concerns with budget constraints) or to the value of the information in terms of its costs.

Nevertheless, it is still possible to undertake a systematic approach in linking costs with outcomes in making these decisions and this can be accomplished through the use of cost-utility analysis. As noted by Levin (1983), the primary advantage of cost-utility analysis is its "flexibility with respect to evaluating a wide range of alternatives in a short period of time with few information requirements and restrictions regarding the measurement of outcomes. The disadvantages are that the technique relies upon a much higher degree of subjective judgment than do the other approaches--judgments that cannot be made explicit since they are really opinions (albeit informed opinions). In essence, [cost-utility] analysis compares the subjective values or utilities that are placed on each alternative by an appropriate audience with the costs of that alternative. Alternatives are then compared to see which provide the highest utility relative to cost" (p. 117). Such a procedure is possible and can prove useful in the selection of assessment projects in higher education. [4]

Basically, the notion of cost-utility refers to attempting to measure the value or usefulness (or contribution to social happiness) of a particular activity or outcome relative to the cost of providing that activity or outcome. Respondents are asked to rate the estimated value or utility of an alternative activity on an ordinal scale, and these values are then summed and averaged to provide an overall rating for each alternative. With the costs also known for each alternative, such

values (units of utility) can then be compared on a cost-utility basis similar to cost-effectiveness ratios. [5]

As with cost-effectiveness analysis, the procedure begins with the normal identification of the problem and specification of alternatives. Cost data are also collected for each alternative as under normal circumstances. However, as in the case of selecting alternative assessment projects in higher education, the expected outcomes may not lend themselves to immediate numeric measurement, especially when viewing the primary outcomes in informational terms. Thus an appropriate group of knowledgeable stakeholders, such as an administrative council or group of department chairs, could be selected to rate the alternatives according to their expected value (utility) in contributing to any number of common outcome dimensions. When both the known or expected costs and expected outcome values (utility) are expressed as utility-cost ratios, we then know the expected increase in value (or utility) per dollar of costs. The objective, of course, is to retain or implement projects with high utility-cost ratios and reduce or eliminate ones with low utility-cost ratios. Table 4 below illustrates the employment of this procedure for assisting decision-makers in a small college to identify which evaluation projects it might select, retain or eliminate.

In Table 4 we have assumed that a small college with approximately 1000 students is faced with a number of outside requirements for greater accountability, while at the same time the college is very much concerned with the improvement of its existing programs and with budget pressures to increase its instructional efficiency. It has assessment information needs in all three of these dimensions. It also has just started on a systematic program of institutional assessment with virtually no resources currently devoted to these types of evaluation activities. A local foundation has recognized these needs and is willing to provide the college with a three year grant of up to $40,000 to assist them in collecting this information, if the college can identify their highest priority assessment needs in

TABLE 4
COST UTILITY OF ALTERNATIVE ASSESSMENT PROJECTS FOR A SMALL COLLEGE

Assessment Alternative	Information Attributes (a & b): Improved Accountability	Improved Effectiveness	Improved Efficiency	(1) Cost per Student (e)	(2) Total Score	(3) Total Weighted Score (f)	(4) Total U/CRatio (g)	(5) Weighted U/CRatio (g)
A--(Student Survey):	24	49	21	$12	94	32	7.83	2.71
B--(Placement Followup):	73	72	68	$16	213	72	13.31	4.48
C--(Inst. Value Added):	95	83	31	$28	209	79	7.46	2.83
D--(External Prog. Review):	44	69	72	$24	185	58	7.71	2.42
.								
.								
.								
N--(Other Assessments):								
Relative Importance of Information Attributes(c)	93	73	36					
Proportion Weights: (d)	.46	.36	.18					

Footnotes:
(a) Information attributes are the perceived outcomes/benefits from the alternative assessment projects. These are represented by information for external accountability, information for improved effectiveness, and information for improved efficiency--i.e., Are we using resources for their intended purpose? Are they effective? And, are we getting our money's worth?
(b) Utility values (or ratings) for each information dimension for each assessment alternative are assigned by the administrative council of the college on a scale from 0 to 100.
(c) Relative Importance Weights for Information Attributes are assumed to be assigned by the president and board of overseers of the college and represent an average of assigned weights.
(d) Proportion Weights are more easily understood than Importance Weights and are merely the Importance Weights expressed as proportions of their sum.
(e) Costs are standardized in per student terms and specified, valued, and measured by the resource components approach.
(f) Total Weighted Score is the sum of the products derived from multiplying the Proportion Weights for each Information Attribute by their assigned utility value.
(g) Ratios represent utility per dollar with the alternative assessment project.

some rational manner. Both the college and foundation recognize that even $40,000 is only a beginning and cannot address all of their assessment information needs either now or over time.

The college president has given this problem over to her administrative council (composed of all the department chairs and senior administrators in the college) and charged them with more systematically identifying and costing out the major assessment projects which need to be undertaken and to rank order them in some rational way. The administrative council decides that it will employ a cost-utility analysis to address this problem.

It is, of course, possible simply to ask each of the council members as chief stakeholders in the total institutional assessment process to rank order each of the evaluation projects according to their perceived value (or utility) in providing the highest priority of information needed, and then compute an average ranking of utility scores for the group for each alternative. From this rather simple and straightforward procedure utility-cost ratios could be constructed and similarly rank ordered--assuming they also have accurate cost data for each of the assessment alternatives. The highest ranked projects would be selected first and until the budget is expended. If any one of the alternative assessment projects is currently being undertaken on a recurring basis and its utility-cost ranking is among the lowest, the administration should consider terminating the activity and reallocating its resources to higher ranked projects.

A major problem with this procedure is that many of the council members may be unclear as to all the dimensions of information and the total benefits which each of the alternatives might provide. In addition, they may value one particular type of assessment information more highly and thus bias their total ranking of any one alternative more highly based on this one dimension, disregarding the importance of its other possible informational benefits. In short, viewing only a single attribute or using a single utility scale may result in an average ranking with

great variance from the individual respondents and, in turn, seriously compromise the validity of the average rankings as being representative.

A useful way to overcome partially some of these problems is to construct a procedure whereby every one of the respondents can assess each of the multiple outcomes separately for each of the alternatives. In order to set this cost-utility procedure in place, all of the alternative assessment projects are first described briefly in terms of their design, procedures and objectives. Special attention is given to their expected informational outcomes and how these will likely contribute to the institution's needs for accountability, improved effectiveness, and efficiency. Based on these descriptions and expected outcomes, all of the members of the administrative council are then asked to rank or value each of the three informational attributes (dimensions) for each project on a scale of 0 to 100, in which 0 reflects the lowest and 100 the highest likely contribution to that dimension of informational outcome--i.e., every dimension of information would be compared against that same dimension for all the alternative projects and ranked with a score somewhere between 0 and 100. The values (or utilities) for each dimension of every alternative given by all the respondents are then averaged for the total group. The result is that every alternative will have three average utility scores, one for each informational dimension as in Table 4.

At the same time, the resource components approach is used to determine the expected costs for each of the alternative assessments. Special attention is given to noting only the marginal (incremental) costs when projecting the partial employment of existing resources already on campus. All other resource components are identified and their costs are counted. If total estimated costs for one of the alternative assessment projects should exceed our budget constraint of $40,000, we would eliminate this alternative as not being feasible.

As noted in Table 4, the utility ratings and the cost for each alternative are used to create utility-cost ratios. If the importance or priority of each of the

three informational dimensions are currently about equal, then one can simply add up utility scores for each of the three informational attributes for an overall utility score (as in column 2) and compute directly a utility-cost ratio (as in column 4); wherein, for example, for each dollar of costs one can expect to get 7.83 units of utility from assessment alternative A.

However, it is believed by most members of this college's administrative council that the three types of assessment information have different priorities given current institutional circumstances and that each of the three informational objectives should be weighted differently. The council deliberates as to whether they or the college's board of overseers should make the judgments concerning such assessment priorities. Because both the board and president have been very active in fund raising, recruiting students and advancing the institution to individuals and agencies outside the college, and because both are perceived as being very knowledgeable about the general informational needs of the institution, the president and board are asked to rate the relative importance of each of the three expected informational outcomes. Their average ratings of relative importance are noted at the bottom of Table 4. From these new utility weights a staff assistant converts them into proportion weights and recomputes the utility rankings to a weighted utility score (as in column 3). In turn, we end up with a different ranking of weighted utility-cost ratios (as in column 5). Note, for example, that alternative C becomes much higher in priority (as in column 5) when its relative importance of information is brought into the utility-cost decision analysis.

Variations of this weighting procedure frequently have been employed within "multiattribute utility models" for decision-making in the management sciences literature (see, e.g., Edwards, 1977; Huber, 1974 and 1980; and Keeney, 1977). A classic example of its use can be found in the decision model used today by professional football teams in their personnel selections from the annual college draft. A utility type score based on past performance, ability testing and scouting

reports is developed for each attribute of each player and then weighted according to its importance by the coaching staff of each team. With computer assistance, the weighted scores are then simply added together to get an overall weighted utility score for each player (Ladany and Machol, 1977). It is even alleged by some sports writers that the Dallas Cowboys got their competitive edge by being first with this type of decision model.

From these additional procedures the administrative council of our college now has a more rational system for addressing their assessment needs in the immediate future. Unless there are some other compelling reasons (such as a specific requirement for accreditation or an external demand for accountability) for targeting assessment on a particular dimension of information, this college should focus its early efforts on alternatives B and C where the weighted utility-cost ratios are highest.

Several other important points concerning the assessment of costs and benefits resulting from evaluation can be noted from this simple illustration. First, one should recognize that "least-cost" types of assessments do not necessarily represent the highest value of information per dollar of costs. Alternative A is clearly least-cost but it is not among the highest priorities for funding. Similarly, "highest-cost" assessments do not necessarily represent the lowest value of information per dollar of costs. Alternative C is clearly highest-cost but it is also among the highest priorities for funding when relative importance of benefits is taken into consideration. Second, changing the relative importance of each informational dimension given time and place can and does change the rankings and priority of the alternative assessment projects. It is important to note again that although the procedure for cost-utility analysis is generalizable to any number of different evaluation situations, the weights and values for any specific cost-utility analysis are relevant only to that specific time, setting and set of respondents. Third, when this procedure is placed on a micro-computer spreadsheet

template (as in the illustration above), the evaluation analyst has the capability to conduct any number of sensitivity analyses while adding alternatives or while changing importance weights, utility values, or expected costs. [6]

IN SUMMARY

As noted at the outset, our purposes in this paper were to examine the costs of evaluation within the context of higher education and to develop a conceptual framework wherein these costs could be effectively linked to their resulting benefits. Our primary objectives were to assist policy and decision-makers at the institutional level to a) better understand the costs and benefits and the process of evaluation and b) make more rational decisions in their planning, budgeting and administering of resources to such efforts. Consequently, it was shown through the model paradigms developed (e.g., with costs of evaluation measured and valued on the basis of their resource components and with benefits measured and valued on the basis of their informational dimensions) that we can, in fact, provide such a framework. It was also shown that decision-making concerning the selection of alternative evaluation projects can be assisted greatly through the use of multiattribute decision model techniques and cost-utility analysis.

It is also hoped that through our discussion and illustrations the reader will now be able to understand better some of the common misperceptions about cost analysis which many administrators in higher education currently hold to be conventional wisdom. In both the literature and the councils of higher education we have frequently read and heard, for example, that "more data is better than less" or "if we can only do a cost analysis we will know where we are with respect to feasibility". In addition, we have all heard that "costs are costs however one counts them" and that "if we can only identify our most expensive programs we should be able to address our concerns about efficiency". Similarly, we have heard that "we all have a common interest in high quality assessment" and that "good solid formal cost analysis is rational decision-making and that the cards will read themselves."

The fallacies of these propositions should by now be self-evident from our analyses and discussions above. The costs of any form of evaluation in higher education are very real when real resources are being employed, and they are often larger than originally estimated or casually observed from the printed budget. Indeed, the literature abounds with illustrations where costs are frequently and seriously underestimated (Carnoy and Levin, 1975). In addition, we know that incremental (marginal) costs are often confused with average costs and these in turn lead to confusing and inaccurate results. Moreover, the self-interest of program staff, institutions, students and outside agencies are clearly different in most evaluation circumstances. Efficiency, by its very definition, requires the use of ratios with inputs and outputs, and costs alone do not address the issue. We must also know the value and importance of the outputs in order to determine the efficiency and cost-effectiveness of assessment projects. And finally, costs-analyses and technical decision-making models are important, but by themselves they will not substitute for administrative judgment. No one with any experience in higher education believes that true institutional assessment for accountability, effectiveness or efficiency (or the selection of alternative projects for such purposes) can be achieved by gathering a few bits of readily available data, feeding the data into a computer model, and reading off the answers. The process is bound to be difficult and in the end subjective and judgmental. However, judgments concerning which projects to undertake can be better informed and made more credible by the systematic fact-gathering of costs and benefits and by analyses of the type described in this paper.

FOOTNOTES

[1] As we use the term, "efficiency" is something that varies directly with a ratio of output to input; or in the case of assessment in higher education, a ratio of its benefits to cost. Accordingly, its application must be restricted to situations where agreement can be reached on techniques of measuring the elements of this ratio. Notoriously, the outcomes of evaluation in higher education are not quantities whose measure reflects wide agreement. Attempts to define such "outputs" typically flounder on the rocks of measurability and perspective. One of the purposes of this paper is to give greater specificity to these outcomes in both measurement and perspective terms.

[2] A total cost function specifying, measuring, and valuing all of the resource components for each of the assessment service areas (as illustrated in Table 2) easily could be programmed onto a micro-computer template which could in turn be used by any program area or institution as a prototype for their cost analysis of both past and anticipated costs of assessment. Accordingly, each cost function template could account for the number and salaries of professional staff, number and salaries of other personnel assistance, quantity and cost per unit of space and equipment, instrumentation and other supplies, quantity and cost per unit for transportation, quantity and cost per unit for computer time, and like specifications for all other resource items. Similarly, an average cost function for each type of assessment service/project could also account for the number of students, courses, credits, or any other unit of special interest.

[3] The measurement of monetary benefits might be possible where the assessment is directly linked to the call for accountability from an external funding source.

[4] At the outset it is also important to note a major restriction with regard to the use of cost-utility analysis in this type of decision making and policy context. The results of a specific cost-utility analysis should never be

recommended directly to another setting with different participants because the procedures and evaluation (utility) scales are biased according to the values, preferences and judgments of the original setting and respondents. The procedure can be replicated but the specific results will not be valid for any setting other than the original.

[5] Although the expression "cost-utility" analysis is frequently the conventional way of expressing this procedure in the literature, the term "utility-cost" should be used when the resulting ratios are expressed in units of outcome (utility) per dollar of costs.

[6] It is also important to note that there are a number of controversial issues concerning the assumptions, methods and procedures necessary for one to conduct utility analysis of the type illustrated in this paper. The origins of utility scales and their use in interpersonal comparisons comes from the field of economics (Ferguson and Maurice, 1974; Fishburn, 1964; Jevons, 1871), and has been employed only recently as an analytical technique for decision-making under uncertainty (Dyckman, Schmidt and McAdams, 1969; Huber, 1980) and as a systematic technique for evaluation in education (Edwards and Newman, 1982; Levin, 1983; Keeney and Raiffa, 1976). Both bodies of literature have been concerned with the fact that utility scales can be thought to have only ordinal, as opposed to cardinal, properties and that such scales do not necessarily have equal intervals between their numeric values. Both have also been concerned with the fact that the same value on a utility scale may not have the same meaning to different respondents and that combining such individual scores may be inappropriate (Arrow, 1963). Analysts concerned with these and other issues in the use of cost-utility analysis for assessment and policy purposes in higher education should consult the above sources.

BIBLIOGRAPHY

Abrahamson, M.A., & Wholey, J.S. (1981). Organization and Management of the Evaluation Function in a Multilevel Organization. New Directions for Program Evaluation. 10, 31-48.

Abt, C.C. (Ed.), (1979). Perspectives on the Costs and Benefits of Applied Social Research. Cambridge: ABT Books.

Alchian, A.A. and H. Demsetz. (1972). Production, Information Costs and Economic Organization. American Economic Review. 62, 777-795.

Alkin, M.C. (1980). Naturalistic Study of Evaluation Utilization. In L.A. Braskamp and R.D. Brown (Eds.), Utilization of Evaluation Information. San Francisco: Jossey-Bass Publications.

Alkin, M.C., & Solmon, L.C. (1983). Conducting Benefit-Cost Analysis of Program Evaluation. In M.C. Alkin & L.C. Solmon (Eds.), The Costs of Evaluation. Beverly Hills: Sage Publications.

Alkin, M. C., & Solmon, L.C. (Eds.). (1983). The Costs of Evaluation. Beverly Hills: Sage Publications.

Alkin, M.C., & Stecher, B. (1983). A Study of Evaluation Costs. In M.C. Alkin & L.C. Solmon (Eds.), The Costs of Evaluation. Beverly Hills: Sage Publications.

Alkin, M.C., & Ruskus, J. (1984). Reflections on Evaluation Costs: Direct and Indirect. Los Angeles: Center for the Study of Evaluation, University of California.

Alkin, M. S. et al (Eds.), (1979). Using Evaluations: Does Evaluation Make a Difference? Beverly Hills: Sage Publications.

Armstrong, R.L. (1982, Winter). The Intangible Costs and Benefits of School Self-Study. The North Central Association Quarterly, 57, 395-401.

Arrow, K.J. (1963). Social Choice and Individual Values. New York: Wiley.

Balderston, F.E. (1972). Cost Analysis in Higher Education. Berkeley: Ford Foundation Program for Research in University Administration, University of California.

Barak, R.J. (1981). Program Evaluation as a Tool for Retrenchment. In James R. MIngle, et al (Eds.). Challenges of Retrenchment. San Francisco: Jossey-Bass Publications.

Bottomley, J.A., et al. (1972). Cost-Effectiveness in Higher Education. Paris: Centre for Educational Research and Innovation, OECD.

Bowen, H.R. (1974). Evaluating Institutions for Accountability. San Francisco: Jossey-Bass Publications.

Bowen, H.R. (1977). Investment in Learning. San Francisco: Jossey-Bass Publishers.

Bowen, H.R. (1980). The Costs of Higher Education. San Francisco: Jossey-Bass Publishers.

Bowen, H.R. (1978b). Socially Imposed Costs of Higher Education. Chicago: University of Illinois.

Bowen, H.R. (1985). The Reform of Undergraduate Education: Estimated Costs. Invited paper presented at a Wingspread Conference, Racine, Wisconsin.

Bowen, H.R., & Douglass, G.K. (1971). Efficiency in Liberal Education. New York: McGraw-Hill.

Brinkerhoff, R.O. et al. (1983). Program Evaluation. Boston: Kluwer-Nijhoff Publishing.

Brown, R.V., Kahr, A.S., & Peterson, C. (1974). Decision Analysis for the Manager. New York: Holt, Rinehart and Winston.

Carnoy, M., & Levin, H.M. (1975). Evaluation of Educational Media: Some Issues. Instructional Science. 4, 385-406.

Catterall, J.S. (1983). A Theoretical Model for Examining the Costs of Testing. In M.C. Alkin & L.C. Solmon (Eds.), The Costs of Evaluation. Beverly Hills: Sage Publications.

Catterall, J.S. (1983). Fundamental Issues in the Costing of Testing Programs. In M.C. Alkin & L.C. Solmon (Eds.), The Costs of Evaluation. Beverly Hills: Sage Publications.

Cavanaugh, A.D. (1969). A Preliminary Evaluation of Cost Studies in Higher Education. Berkeley: Office of Institutional Research, University of California.

Chambers, J.G., & Hartman, W.T. (1983). A Cost-Based Approach to the Funding of Educational Programs: An Application to Special Education, in Jay Chambers and William T. Hartman (eds.), Special Education Policies: Their History, Implementation and Finance. Philadelphia: Temple University Press.

Chambers, J.G., & Parrish, T.B. (1984). The Development of a Program Cost Model and a Cost of Education Model for the State of Alaska (Prepared for the Alaska Department of Education). Stanford: Associates for Education Finance and Planning, Incorporated.

Chelimsky, E. (1983). Improving the Cost Effectiveness of Evaluation. In M.C. Alkin & L.C. Solmon (Eds.), The Costs of Evaluation. Beverly Hills: Sage Publications.

Ciarlo, J.A. (Ed.), (1981). Utilizing Evaluation: Concepts and Measurement Techniques. Beverly Hills: Sage Publications.

Cleveland, H. (1985). The Costs and Benefits of Openness: Sunshine Laws and Higher Education. Washington, D.C.: Association of Governing Boards of Universities and Colleges.

Cohen, M.D., March, J.G., & Olsen, J.P. (1972, March). A Garbage Can Model of Organizational Choice, Administrative Science Quarterly. 17,(1).

Columbia Research Associates. (1971). The Cost of College. Report Prepared for the Office of Program Planning and Evaluation, U.S. Office of Education. Cambridge: Columbia Research Associates. (Also supplements 1972 and 1975).

Conrad, E.F., & Wilson, R.F. (1985). Academic Program Reviews: Institutional Approaches, Expectations, and Controversies. ASHE-ERIC Higher Education Report No. 5. Washington, D.C.: Association for the Study of Higher Education.

Day, G.S. (1978). Assessing the Effects of Information Disclosure Requirements. In David A. Aaker and George S. Day (Eds.), Consumerism: Search for the Consumer Interest. New York: The Free Press, 130-145.

Decision Analysis Group. (1976). Readings in Decision Analysis. Menlo Park: Stanford Research Institute.

Decision Resources Corporation. (1984). Survey of Expenditures for Special Education and Related Services: Conceptual and Methodological Report. Washington, D.C.: Decision Resource Corporation.

Dillon, K. (1979). The Rising Costs of Higher Education: 1946-1977. Unpublished doctoral dissertation, Claremont Graduate School.

Dornbusch, S.M. (1979). Perspectives from Sociology: Organizational Evaluation of Faculty Performances. In D.R. Lewis & W.E. Becker, Jr. (Eds.), Academic Rewards in Higher Education. Cambridge: Ballinger Publishing Company.

Drezek, S., Monkowski, P.G., & Higgins, P.S. (1982). Current vs. Perceived-Ideal Procedures for Determining Educational Program-Evaluation Budgets: A Survey of School Evaluators. Educational Evaluation and Policy Analysis, 4,(1), 97-108.

Dyckman, T.R., S. Schmidt, & A.K. McAdams. (1969). Management Decision Making Under Uncertainty: An Introduction to Probability and Statistical Decision Theory. Toronto, Ontario: The MacMillan Co., 306-334.

Edwards, W. (1977, May). How to Use Multi-Attribute Utility Measurement for Social Decision Making, IEEE Transactions on Systems, Man, and Cybernetics SMC-7. 326-340.

Edwards, W., & Newman, J.R. (1982). Multiattribute Evaluation. Beverly Hills: Sage Publications.

Ewell, P.T., & Jones, D.P. (1985). The Costs of Assessment. Paper prepared for the National Center for Higher Education Management Systems.

Ferguson, C.E., & Maurice, S.C. (1974). Economic Analysis. Homewood, III: Richard D. Irwin, Inc.

Fincher, C. (1978). On the Study of Cost Studies. Research in Higher Education, 93-96.

Fishburn, P. (1964). Decision and Value Theory. New York: Wiley.

Goldman, A. (1980, June). A Functional Analysis of the 1979-1980 New York City Board of Education Budget. Brooklyn: New York City Board of Education.

Haggart, S.A. (1983). Determining the Resource Requirements and Cost of Evaluation. In M.C. Alkin & L.C. Solmon (Eds.), The Costs of Evaluation. Beverly Hills: Sage Publications.

Haggart, S.A. (1978). The Resource Approach to the Analysis of Educational Program Cost. Washington, D.C.: U.S. Department of Health, Education and Welfare.

Halstead, D.K. (1975). Higher Education Prices and Price Indexes. DHEW Publication No. OE 75-17005. Washington, D.C.: U.S. Government Printing Office. (Also annual supplements 1975, 1976, 1977, and 1978).

Hartman, W.T. (1981). Estimating the Costs of Educating Handicapped Children: A Resource-Cost Model Approach. Educational Evaluation and Policy Analysis. 3,(4), 33-47.

Hirshleifer, J. (1971). The Private and Social Value of Information and the Reward to Inventive Activity. American Economic Review. 61, 561-574.

Huber, G.P. (1980). Managerial Decision Making. Glenview: Scott, Foresman & Co.

Huber, G.P. (1974, June). Multiattribute Utility Models: A Review of Field and Fieldlike Studies, Management Science. 20, 1393-1402.

Jevon, W.S. (1871). Theory of Political Economy. London: Macmillan.

Joint Committee on Standards for Educational Evaluation. (1981). Standards for Evaluations of Educational Programs, Projects, and Materials. New York: McGraw-Hill Book Company.

Kalalik, J.S., Furry, W.S., Thomas, M.A., & Carney, M.F. (1981). The Cost of Special Education. Santa Monica: Rand Corporation.

Keeney, R.L. (1977, August). The Art of Assessing Multiattribute Utility Functions, Organizational Behavior and Human Performance, 19, 267-310.

Keeney, R., & Raiffa, H. (1976). Decisions and Multiple Objectives: Preferences and Value Tradeoffs. New York: Wiley.

Ladany, S.P., & Machol, R.E. (1977). Optimal Strategies in Sports. New York: North-Holland Publishing Company.

Lai, M.K. (1978, March). Consumer's Guide to Educational Evaluation. Paper presented at the Annual Meeting of the American Educational Research Association, Toronto, Canada.

Levin, H.M. (1975). Cost Effectiveness Analysis in Evaluation Research. In M. Guttentag and E.L. Struening (Eds.), Handbook of Evaluation Research, 2. Beverly Hills: Sage Publications.

Levin, H.M. (1981). Cost Analysis. In N. Smith (Ed.), New Techniques for Evaluation. Beverly Hills: Sage Publications.

Levin, H.M. (1983). Cost Effectiveness: A Primer. Beverly Hills: Sage Publications.

Levin H.M., Glass, G.V., & Meister, G.R. (1984). Cost-Effectiveness of Four Educational Interventions (Project Report No. 84-A11). Stanford: Institute for Research on Educational Finance and Governance, Stanford University.

Lindblom, C. E., & Cohen, D.K. (1979). Usable Knowledge: Social Science and Social Problem Solving. New Haven: Yale University Press.

Lyon C.D., Doscher, L., McGranahan, P., & Williams, R. (1978). Evaluation and School Districts. Los Angeles: Center for the Study of Evaluation, University of California.

Meeth, L.R. (1975). Quality Education for Less Money: A Sourcebook for Improving Cost Effectiveness. San Francisco: Jossey-Bass Publishers.

Morell, J.A., & Weirich, T.W. (1983). Determining the Costs of Evaluation: Principles from Mental Health. In M.C. Alkin & L.C. Solmon (Eds.), The Costs of Evaluation. Beverly Hills: Sage Publications.

National Association of College and University Business Officers. (1977). Cost Behavior Analysis for Planning in Higher Education. Washington, D.C.: National Association of College and University Business Officers.

National Association of College and University Business Officers. (1975). Fundamental Considerations for Determining Cost Information in Higher Education. Washington, D.C.: National Association of College and University Business Officers.

National Center for Education Statistics, U.S. Department of Health, Education, and Welfare. (1986). Digest of Education Statistics. Washington, D.C.: U.S. Government Printing Office, annual reports.

National Institute of Education, Study Group on the Conditions of Excellence in American Higher Education. (1984). Involvement in Learning: Realizing the Potential of American Higher Education. Washington, D.C.: U.S. Government Printing Office.

Paisley, W., Blackwell,L., Emrick, J.A., Rittenhouse, D.H., & Cooper, M.D. (1978). Cost Analysis of Educational Extension Services. San Francisco: Far West Laboratory for Educational Research and Development.

Palola, E.G., et al. (1975). Program Effectiveness and Related Costs (PERC): An Overview. Saratoga Springs, N.Y.: Empire State College.

Popham, W.J. (1975). Educational Evaluation (pp. 267-281). Englewood Cliffs: Prentice-Hall

Quinn, B., Van Mondfrans, A., & Worthen, B.R. (1984, Spring). Cost-Effectiveness of Two Math Programs as Moderated by Pupil SES. Educational Evaluation and Policy Analysis. 6,(1), 39-52.

Raiffa, H. (1968). Decision Analysis. Reading: Addison-Wesley Publishing Company.

Riesman, D. (1980). On Higher Education. San Francisco: Jossey-Bass Publishers.

Rusnell, D. (1979). Cost-effective Evaluation: Is There a $500 Solution for a $1,000 Problem? New Directions for Continuing Education, 3, 97-107.

Sanders, J.R. (1983). Cost Implications of the Standards. In M.C. Alkin & L.C. Solmon (Eds.), The Costs of Evaluation. Beverly Hills: Sage Publications.

Schmidt, R.E. (1983). Evaluability Assessment and Cost Analysis. In M.C. Alkin & L.C. Solmon (Eds.), The Costs of Evaluation. Beverly Hills: Sage Publications.

Scriven, M. (1983). Costs in Evaluation: Concept and Practice. In M.C. Alkin & L.C. Solmon (Eds.), The Costs of Evaluation. Beverly Hills: Sage Publications.

Seeley, J. (1981). Program Review and Evaluation. In Nick L. Poulton (Ed.), Evaluation of Management and Planning Systems. San Francisco: Jossey-Bass Publications.

Solman, L.C. (1983). Economic Issues in Considering the Costs of Evaluation. In M.C. Alkin & L.C. Solmon (Eds.), The Costs of Evaluation. Beverly Hills: Sage Publications.

Stigler, G.S. (1961, June). The Economics of Information. Journal of Political Economy, 69,(3), 213-225.

Stufflebeam, D.L., & Webster, W.J. (1980, May-June). An Analysis of Alternative Approaches to Evaluation. Educational Evaluation and Policy Analysis, 3,(2), 5-19.

Trow, M. (1975). The Public and Private Lives of Higher Education, Daedelus, 2, 113-127.

Vaizey, J. (1970). The Outputs of Higher Education: Their Proxies, Measurement, and Evaluation. In L.B. Weathersby G., & V.W. Patterson (Eds.), Outputs of Higher Education: Their Identification Measurement and Evaluation. Boulder: Western Interstate Commission for Higher Education, 19-26.

Verry, D., & Davies, B. (1976). University Costs and Outputs. Amsterdam: Elsevier.

Wasser, H. (Ed.). (1978). Institutional Costs in American Higher Education. Proceedings of Conference on Economics of Higher Education: A Comparative Perspective of Policy and Dilemma. New York: City University of New York.

Webster, W.J., & Stufflebeam, D.L. (1978, March). The State of Theory and Practice in Educational Evaluation in Large Urban School Districts. Invited address presented at annual meeting of the American educational Research Association, Toronto.

Witmer, D.R. (1972). Cost Studies in Higher Education, Review of Educational Research, 42, 99-127.